

REMARKS

STATUS OF CLAIMS:

Claims 8-16 are pending in the application. Claims 10, 11 and 16 are allowed. Claims 8, 9, 12, 13 and 15 are rejected. Claim 14 is objected to.

DOUBLE PATENTING:

Claims 12, 13 and 15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent 6,683,439 (hereinafter “’439”).

Applicants respectfully submit that amended claim 12, along with dependent claims 13 and 15, in the pending application define an invention that is not merely an obvious variation of an invention claimed in the cited patent. Further, the claimed subject matter is patentably distinct from the subject matter claimed in the commonly owned patent.

For example, claims 1-7 of the ‘439 patent do not explicitly define that the controller receives the condition signal from the battery condition detecting means and determines that the battery pack is fully charged when said battery pack is being currently charged and when said DC voltage from said DC power source is being supplied to said tool and charging of said battery pack is being interrupted. Instead, claim 1 of the ‘439 patent recites that the controller “determines that the battery pack is fully charged regardless of whether the charging means is supplied with the DC power.” However, amended claim 12 explicitly requires the controller to determine that that battery pack is fully charged not only when the battery pack is being currently charged, but also when said DC voltage from said DC power source is being supplied to said tool

and charging of said battery pack is being interrupted. It is submitted that these specific features would not have been necessarily taught or suggested by claims 1-7 of the '439 patent. Therefore, claim 12 is not obvious in view of claims 1-7 of the '439 patent, such that the rejection therefore should be withdrawn. The rejection of claims 13 and 15 should likewise be withdrawn at least due to these claims depending from claim 12.

35 U.S.C. § 103:

Claims 8, 9, 12 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP-2000184614 (hereinafter "JP '614") in view of Sakakibara et al. (U.S. Patent 6,075,347 [hereinafter "Sakakibara"]).

The Examiner acknowledges that JP '614 does not teach the features of independent claims 8, 9 and 12 regarding detection that continues when the battery pack is charged and when the DC voltage from the DC power source is supplied to the tool. The Examiner therefore cites Sakakibara for disclosing a tool that detects a fully charged battery based on a temperature of the battery.

As an initial matter, Sakakibara determines that a battery has fully been charged while monitoring current flowing in the battery. With the battery charger of Sakakibara, since current flows only during charging, whether the battery has been fully charged or not cannot be determined when the charging operation is not carried out. Therefore, Sakakibara does not disclose or suggest the features recited in claims 8, 9, 12 and 13.

Moreover, Applicants submit that the disclosure of detecting an amount of charge based on a temperature would not have motivated one to modify JP '614 to provide the claimed

features. In particular, JP '614 teaches that when a power switch 42 is turned on, the DC power supply unit supplies power to a tool. Likewise, when the power switch 42 is turned off, the output of the DC power supply unit is supplied to the battery. JP '614 teaches that this feature allows the maximum capacity of the DC power source to be provided to charge the battery in a short period of time (see Abstract of JP '614).

The combined teachings of Sakakibara and JP '614 teach that, when a battery is charged, an amount of charge can be detected based on a temperature. Sakakibara teaches to monitor the temperature to avoid the temperature becoming too high. (See col. 5, lines 15-20 of Sakakibara). If the temperature becomes too high, the charging current is automatically reduced. Therefore, if one were to apply the teachings of Sakakibara to JP '614, that person would have been taught to charge a battery in such a way so as to monitor its temperature during charging and prevent a dangerously high temperature. Such a combination, would still not have taught the claimed invention, but may have altered the way in which the battery of JP '614 is monitored during charging. The combination still does not teach to detect whether a battery is fully charged when the DC voltage from the DC power source is supplied to the tool and charging of the battery pack is being interrupted. JP '614 is silent in regard to charging a battery at the same time that power is supplied to the tool for operation. It therefore naturally follows that an additional teaching of detecting a battery state during charging (i.e., disclosure of Sakakibara) still would not teach or suggest the present invention.

Applicants therefore submit that the combination of Sakakibara with JP '614 does not teach or suggest each feature recited in claim 8 such that the rejection thereof under 35 U.S.C. § 103(a) should be withdrawn. Applicants also submit that the rejection of claims 9 and 12 should

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be withdrawn for a similar reason. Claim 13 would be submitted as being allowable at least due to its dependency on claim 12.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


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